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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,804	12/04/2003	Richard H. Dee	2003-072-TAP	6825

7590 09/21/2006

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EXAMINER	
RENNER, CRAIG A	

ART UNIT	PAPER NUMBER
2627	

DATE MAILED: 09/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/727,804	DEE, RICHARD H.	
	Examiner	Art Unit	
	Craig A. Renner	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 August 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) *20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *04 December 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/04/2003 & 04/25/2005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of "Group I comprising Claims 1-19" in the reply filed on 09 August 2006 is acknowledged. Accordingly, claim 20 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to one or more non-elected inventions/species, there being no allowable generic or linking claim.

Drawings

2. The drawings were received on 04 December 2003. These drawings are accepted.

Specification

3. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 3, 4, 12 and 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a. In lines 1-4 in each of claims 3 and 12, it is indefinite as to whether "wherein said plurality of read/write heads comprises at least one read/write head of a read/write configuration and a write/read configuration" means that the plurality of read/write heads comprises at least one read/write head having both a read/write configuration and a write/read configuration, or that the plurality of read/write heads comprises at least one read/write head of a read/write configuration or at least one read/write head of a write/read configuration.

b. In lines 1-4 in each of claims 4 and 13, it is indefinite as to whether "wherein said plurality of read/write heads comprises at least one read/write head of a read/write/read configuration and a write/read/write configuration" means that the plurality of read/write heads comprises at least one read/write head having both a read/write/read configuration and a write/read/write configuration, or that the plurality of read/write heads comprises at least one read/write head of a read/write/read configuration or at least one read/write head of a write/read/write configuration.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-8 and 10-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Dupy (US 2,706,752).

With respect to claims 1-8, Dupy teaches a data storage system comprising a plurality of read/write heads (52, 53 and 54); a plurality of data channels (each 55), a subset (includes at least one 55, for instance) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 5, for instance); and a storage medium (56) including a plurality of storage bands (corresponding to at least two elements 55), wherein each read/write head of the plurality of read/write heads is aligned to read or write data from or to a corresponding storage band of the plurality of storage bands (as shown in FIG. 5, for instance, i.e., as well as additional storage bands of the plurality of storage bands), and access at least the subset of the plurality of data channels (as shown in FIG. 5, for instance) [as per claim 1]; wherein the data storage system comprises a magnetic tape drive (lines 64-65 in column 3, for instance) [as per claim 2]; wherein the plurality of read/write heads comprises at least one read/write head of a read/write configuration and a write/read configuration (lines 62-64 in column 3, for instance, i.e., the channels 55 of each

read/write head are capable of "recording or play-back" and are therefore configured vertically in a (read or write)/(read or write) configuration thus qualifying as either a vertically oriented read/write configuration or a vertically oriented write/read configuration) [as per claim 3]; wherein the plurality of read/write heads comprises at least one read/write head of a read/write/read configuration and a write/read/write configuration (lines 62-64 in column 3, for instance, i.e., the channels 55 of each read/write head are capable of "recording or play-back" and are therefore configured vertically in a (read or write)/(read or write)/(read or write) configuration thus qualifying as either a vertically oriented read/write/read configuration or a vertically oriented write/read/write configuration) [as per claim 4]; wherein at least one read/write head of the plurality of read/write heads includes a read/write element and a write/read element (lines 62-64 in column 3, for instance, i.e., the channels 55 of each read/write head are capable of "recording or play-back" and thus qualify as either a read/write element or a write/read element) [as per claim 5]; wherein a number (i.e., three, for instance) of the plurality of read/write heads is equal to a number (i.e., three, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 6]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., five, for instance) of data channels per read/write head [as per claim 7]; and wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N, whereby M comprises a total number (i.e., fifteen) of data channels (each 55), and N comprises at least one of a total number

of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals three) [as per claim 8].

With respect to claims 10-18, Dupy teaches a read/write head assembly comprising a plurality of read/write heads (52, 53 and 54), each read/write head of the plurality of read/write heads operable to read or write data from or to a corresponding storage band of a plurality of storage bands (corresponding to at least two elements 55) arranged on a storage medium (56); and a plurality of data channels (each 55), a subset (includes at least one 55, for instance) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 5, for instance) [as per claim 10]; wherein the storage medium comprises a magnetic tape (lines 64-65 in column 3, for instance) [as per claim 11]; wherein the plurality of read/write heads comprises at least one read/write head of a read/write configuration and a write/read configuration (lines 62-64 in column 3, for instance, i.e., the channels 55 of each read/write head are capable of "recording or play-back" and are therefore configured vertically in a (read or write)/(read or write) configuration thus qualifying as either a vertically oriented read/write configuration or a vertically oriented write/read configuration) [as per claim 12]; wherein the plurality of read/write heads comprises at least one read/write head of a read/write/read configuration and a write/read/write configuration (lines 62-64 in column 3, for instance, i.e., the channels 55 of each read/write head are capable of "recording or play-back" and are therefore configured vertically in a (read or write)/(read or write)/(read or write) configuration thus qualifying as either a vertically oriented read/write/read configuration or a vertically oriented

write/read/write configuration) [as per claim 13]; wherein at least one read/write head of the plurality of read/write heads includes a read/write element and a write/read element (lines 62-64 in column 3, for instance, i.e., the channels 55 of each read/write head are capable of "recording or play-back" and thus qualify as either a read/write element or a write/read element) [as per claim 14]; wherein the subset of the plurality of data channels comprises a read channel and a write channel (lines 62-64 in column 3, for instance, i.e., the channels 55 of each read/write head are capable of "recording or play-back" and thus qualify as either a read channel or a write channel) [as per claim 15]; wherein a number (i.e., three, for instance) of the plurality of read/write heads is equal to a number (i.e., three, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 16]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., five, for instance) of data channels per read/write head [as per claim 17]; and wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N, whereby M comprises a total number (i.e., fifteen) of data channels (each 55), and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals three) [as per claim 18].

9. Claims 1-2, 6-11 and 16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Siebert (US 3,614,342).

With respect to claims 1-2 and 6-9, Siebert teaches a data storage system comprising a plurality of read/write heads (56 and 57); a plurality of data channels (68-72), a subset (includes at least one of 68-72) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 3, for instance); and a storage medium (11) including a plurality of storage bands (51-54), wherein each read/write head of the plurality of read/write heads is aligned to read or write data from or to a corresponding storage band of the plurality of storage bands (as shown in FIG. 3, for instance, i.e., as well as an additional storage band of the plurality of storage bands), and access at least the subset of the plurality of data channels (as shown in FIG. 3, for instance) [as per claim 1]; wherein the data storage system comprises a magnetic tape drive (lines 69-70 in column 1, for instance) [as per claim 2]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 6]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., two, for instance) of data channels per read/write head [as per claim 7]; wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N, whereby M comprises a total number (i.e., four) of data channels, and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 8]; and wherein the data storage system further

comprises a position control unit (includes 61, for instance) operable to align at least one read/write head (56, for instance) of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (as shown in FIGS. 2-3, for instance) [as per claim 9].

With respect to claims 10-11 and 16-18, Siebert teaches a read/write head assembly comprising a plurality of read/write heads (56 and 57), each read/write head of the plurality of read/write heads operable to read or write data from or to a corresponding storage band (one of 51-54) of a plurality of storage bands (51-54) arranged on a storage medium (11); and a plurality of data channels (68-72), a subset (includes at least one of 68-72) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 3, for instance) [as per claim 10]; wherein the storage medium comprises a magnetic tape (lines 69-70 in column 1, for instance) [as per claim 11]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 16]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., two, for instance) of data channels per read/write head [as per claim 17]; and wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N, whereby M comprises a total number (i.e., four) of data channels, and N comprises at least one of a total number of the

plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 18].

10. Claims 1-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Draaisma et al. (US 5,966,276).

With respect to claims 1-9, Draaisma teaches a data storage system (FIG. 7, for instance) comprising a plurality of read/write heads (400 and 402); a plurality of data channels (400t-400z, 402w-402z, each 403a and each 403b), a subset (includes at least one of 400t-400z, 402w-402z, 403a and 403b) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads; and a storage medium (404) including a plurality of storage bands (includes St-Sz, Dx-Dz and D'x-D'z), wherein each read/write head of the plurality of read/write heads is aligned to read or write data from or to a corresponding storage band of the plurality of storage bands (as shown in FIG. 7, for instance, i.e., as well as additional storage bands of the plurality of storage bands), and access at least the subset of the plurality of data channels (as shown in FIG. 7, for instance) [as per claim 1]; wherein the data storage system comprises a magnetic tape drive (line 20 in column 8, for instance) [as per claim 2]; wherein the plurality of read/write heads comprises at least one read/write head (402, for instance) of a read/write configuration and a write/read configuration (403a/403b, for instance, i.e., a read/write configuration) [as per claim 3]; wherein the plurality of read/write heads comprises at least one read/write head (402, for instance) of a read/write/read configuration and a write/read/write configuration (402w/403a/403b, for

instance, i.e., a write/read/write configuration) [as per claim 4]; wherein at least one read/write head (402) of the plurality of read/write heads includes a read/write element (402w) and a write/read element (402x) [as per claim 5]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 6]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., four, for instance) of data channels per read/write head [as per claim 7]; wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality of storage bands is defined as M/N, whereby M comprises a total number (i.e., nineteen) of data channels, and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 8]; and wherein the data storage system further comprises a position control unit (includes 406, for instance) operable to align at least one read/write head (402) of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a single positioning mode of operation (lines 46-59 in column 8, for instance) [as per claim 9].

With respect to claims 10-19, Draaisma teaches a read/write head assembly (FIG. 7, for instance) comprising a plurality of read/write heads (400 and 402), each read/write head of the plurality of read/write heads operable to read or write data from or to a corresponding storage band (includes one of St-Sz, Dx-Dz and D'x-D'z) of a

plurality of storage bands (includes St-Sz, Dx-Dz and D'x-D'z) arranged on a storage medium (404); and a plurality of data channels (400t-400z, 402w-402z, each 403a and each 403b), a subset (includes at least one of 400t-400z, 402w-402z, 403a and 403b) of the plurality of data channels coupled to a read/write head of the plurality of read/write heads (as shown in FIG. 7, for instance) [as per claim 10]; wherein the storage medium comprises a magnetic tape (line 20 in column 8, for instance) [as per claim 11]; wherein the plurality of read/write heads comprises at least one read/write head (402, for instance) of a read/write configuration and a write/read configuration (403a/403b, for instance, i.e., a read/write configuration) [as per claim 12]; wherein the plurality of read/write heads comprises at least one read/write head (402, for instance) of a read/write/read configuration and a write/read/write configuration (402w/403a/403b, for instance, i.e., a write/read/write configuration) [as per claim 13]; wherein at least one read/write head (402, for instance) of the plurality of read/write heads includes a read/write element (402w) and a write/read element (402x) [as per claim 14]; wherein the subset of the plurality of data channels comprises a read channel (403a) and a write channel (403b) [as per claim 15]; wherein a number (i.e., two, for instance) of the plurality of read/write heads is equal to a number (i.e., two, for instance) of the plurality of storage bands (i.e., less than a total number of the plurality of storage bands) [as per claim 16]; wherein a relationship between the subset of data channels and the plurality of read/write heads is defined as M/N, whereby M/N comprises a number (i.e., four, for instance) of data channels per read/write head [as per claim 17]; wherein a relationship between the subset of data channels, the plurality of read/write heads, and the plurality

of storage bands is defined as M/N, whereby M comprises a total number (i.e., nineteen) of data channels, and N comprises at least one of a total number of the plurality of read/write heads and a total number of the plurality of storage bands (i.e., a total number of the plurality of read/write heads equals two) [as per claim 18]; and wherein the read/write head assembly further comprises an actuation unit (includes 406, for instance) operable to align at least one read/write head of the plurality of read/write heads with the corresponding storage band of the plurality of storage bands with a fine positioning operation (lines 46-59 in column 8, for instance) [as per claim 19].

Pertinent Prior Art

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. This includes Nickl (US 3,158,374), Shoemaker (US 3,893,188), Yoshida et al. (US 4,258,401), Arai et al. (US 4,539,615), Fields, Jr. (US 4,685,005), Kira (US 5,068,760), Jagielinski (US 5,218,498), Schwarz et al. (US 5,229,895), Muller et al. (US 5,831,798), Kira (US 5,995.337), Dee (US 6,097,570), Cates et al. (US 6,236,525), Schwarz et al. (US 6,330,123), Hungerford et al. (US 6,362,934), Watson et al. (US 6,970,314), Helms (US 2002/0097518), and Denison et al. (US 2003/0123185), which each individually teaches a data storage system with a plurality of read/write heads each having a plurality of data channels; and Gerding (US 3,426,338), Youngquist (US 5,008,765), and Saliba (US 5,289,328), which each individually teaches a data storage system with at least one read/write head having a plurality of data channels.

Conclusion

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig A. Renner whose telephone number is (571) 272-7580. The examiner can normally be reached on Monday-Tuesday & Thursday-Friday 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (571) 272-7579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Craig A. Renner
Primary Examiner
Art Unit 2627

CAR